

Abstract for Midwest SETAC meeting

March 19-20, 2013

La Crosse, WI

Presentation Type: Platform

Behind the scene with the fathead team: Part III. Molecular, biochemical, and in vitro analyses.

Severson, MN²; Cavallin, JE¹; Stevens, KE¹; Berninger, J²; Durhan, EJ²; Eid, E²; Jensen, KM²; Kahl, MD²; LaLone, CA²; Makynen, EA²; Villeneuve, DL²; Ankley, GT²

¹ ORISE Research Participation Program, U.S. EPA, Duluth, MN

²U.S. EPA, Duluth, MN

Abstract: (300 word limit)

As part of a research team focused on aquatic toxicity testing using fathead minnows as a model species, this presentation is the third in the three-part series, giving an overview of the types of field and laboratory studies as well as sample processing our team conducts at the U.S. EPA, Mid-Continent Ecology Division. "Part III: Molecular, biochemical, and in vitro analyses" details the procedures used to analyze surface water samples as well as tissues and bio-fluids from fathead minnows (e.g. gonad, plasma, liver, and carcass.) The analyses employed include: ex-vivo steroidogenesis assay, radioimmunoassay (RIA), quantitative polymerase chain reaction (QPCR), histology, enzyme linked immunosorbent assay (ELISA), analytical residual analysis, and cell bioassays. Results from recent experiments will be presented to highlight the complementary utility of the various assays and endpoints. The data collected from this battery of assays provides a means to evaluate exposures to contaminants of emerging concern (CECs) in the field, quantify effects, and define and describe endocrine adverse outcome pathways.

Keywords: Fathead minnows, radioimmunoassay, gene expression, contaminants of emerging concern, endocrine disruption

Contact Information:

Megan N. Severson

US EPA, Mid-Continent Ecology Division

6201 Congdon Blvd.

Duluth, MN 55804

severson.megan@epa.gov

STICs Field	Entry
1 – Influence/profile	Not applicable
2 – Clearance tracking no.	Assigned automatically
3 – Principal Investigator / Project Officer	Dan Villeneuve
4- Product title	Copy and paste from abstract
5 - Authors	See abstract
6a- Product type	Presentations and technical summaries
6b-Product subtype	Abstract
6c – Records schedule	Not a senior official
7a – Impact statement	n/a
7b- Product description	Paste in abstract
8 – Bibliographic citation	2013 Annual Midwest SETAC Meeting, March 19-20, 2013, La Crosse, WI
9 - Access	Public
10 – Tracking and Planning Task	2.1.2 2.1.2: AOP-based effects monitoring and exposure reconstruction
10 – Tracking and Planning Product	(1) Case study on use of pathway-based effects data for exposure characterization: Using pathway-based effects in fish to characterize exposures associated with waste-water treatment plant discharges and/or agricultural runoff.
11 – Copyright permission	No
12 - QA	not applicable
13 – Policy implications	No
14 - Keywords	adverse outcome pathways, endocrine disruptors, monitoring, surface water, aquatic ecosystems